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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/699,704	10/30/2000	Heribert Weber	10191/1616	7028

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EXAMINER

MARTIR, LILYBETT

ART UNIT PAPER NUMBER

2855

DATE MAILED: 12/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/699,704

Applicant(s)

WEBER ET AL

Examiner

Lilybett Martir

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 14-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Newly submitted claims 14-18 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the newly presented claims are directed toward the method of producing a mass flow sensor, said claims divert from the originally filed apparatus claims and constitute a totally distinct invention. The new claims are classified and belong to a different art, and therefore their examination would create a serious burden on the examiner. The steps involved in forming an element are in no way similar to the element itself, and the method of forming a device is not germane to the issue of patentability of the device itself since different processes could be used to form the same device.

2. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 14-18 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.



4. Claims 1,4-5, 7-11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Kinard et al. (Pat. 5,393,351). Kinard et al. teaches the claimed invention, including:

- With respect to claim 1, Kinard teaches a frame as in element 202 formed by silicon; a membrane held by the frame as in elements 260 and above in Figure 3; a metal layer as in element 208 including a first structure and a second structure and being arranged above the frame; a heating element as are elements 206, 506 or 706 formed by a first structure in the metal layer; at least one temperature measurement element as are elements 208, 210, 508, 510, 708 or 710 formed by a second structure in the layer; and a moisture barrier as in element 268 arranged above the metal layer (Col. 11, lines 15-17).
- With respect to claim 4, Kinard teaches a moisture barrier forming a top layer of the mass flow sensor as noted in the position of element 268 in Figure 3.
- With respect to claim 5, Kinard et al. teaches a moisture barrier as in element 268 formed at least in part by at least one of a top sandwich system and a bottom sandwich system (note in Figure 1 that the elements that are positioned above element 260 are sandwiched since they are inserted between other elements), a top sandwich system including at least one first silicon oxide layer as in element 264 and at least one first silicon nitride layer as in element 262; and a bottom sandwich system arranged beneath the metal layer and including at

least one second silicon oxide layer as in element 260 and at least one second nitride layer as in element 270.

- With respect to claim 7, Kinard et al. teaches a silicon oxide layer arranged beneath the metal layer as in element 264 in Figure 3.
- With respect to claim 8, Kinard et al teaches the utilization of a nitride layer as in element 262 in Figure 3.
- With respect to claim 9, Kinard et al teaches a silicon oxide layer 260 formed by a thermal oxidation (Col. 6, lines 50-53) arranged between nitride layers as in elements 262 and 270.
- With respect to claim 10, Kinard et al teaches a nitride layer including a silicon nitride layer as in element 262 (Col. 10, lines 67-68).
- With respect to claim 11, Kinard et al teaches an oxide layer as in element 260 arranged in a recess area beneath the nitride layer.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-3, 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinard et al. (Pat. 5,393,351) in view of Sato et al. (Pat. 5,852,239).



- With respect to claims 2 and 3, Kinard et al. teaches the use of silicon nitride layers as in elements 262 and 270. But he fails to utilize the nitride layer as a moisture barrier. Since it has been held that rearranging parts of an invention involves only routine skill in the art. (In re Japikse, 86 USPQ70) one of ordinary skill in the art would have readily recognized the advantages and desirability of rearranging and utilizing the nitride layer as a moisture barrier to further protect the detector from environmental hazards that may cause malfunction.
- With respect to claim 13, Kinard et al. teaches a nitride layer formed by one of a PECVD operation, a LPCVD operation, or a CVD operation (Col. 5, lines 10-18).
- With respect to claim 6, Kinard et al fails to teach at least one of the top sandwich system and the bottom sandwich system including at least one silicone carbide layer. Sato et al. teaches a flow sensor having a thin film of silicon carbide deposited over the surface of a substrate (Col. 4, lines 16-18) and therefore that the utilization of said material is well known in the art of flow sensors. One of ordinary skill in the art would have readily recognized the advantages and desirability if providing a layer of silicone carbide inside the membrane structure of the sensor for the purpose of utilizing a preferred well-known heat refractory material that would allow accurate flow measurements.
- With respect to claim 12, Kinard et al teaches a recess as in element 226, the utilization of oxide layers as in element 260 and nitride layers

as in elements 270 and 262. Kinard et al. fails to teach a recess that does not contain an oxide layer. Since it has been held that the omission of an element and its function in a combination where the remaining elements perform the same function as before involves only routine skill in the art (In re Karlson, 136 USPQ 184), one of ordinary skill would have readily recognized the advantages and desirability of rearranging or omitting the presence of a layer in said recess therefore exposing the nitride layer in order utilize the nitride layer as a moisture barrier to further protect the detector from environmental hazards that may cause malfunction.

Response to Arguments

7. Applicant's arguments filed August 14, 2002 have been fully considered but they are not persuasive. It is well known in the art that silicone oxide not only repels water and is water insoluble. Silicones repel water, which explains why they may be used as waterproofing fabrics and building materials, and the fact that Kinard et al. does not further explore or explain the known qualities of such material does not imply that the material loses it's water repellant qualities when utilized. The same situation applies with the utilization of silicone carbide.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

9. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is

filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lilybett Martir whose telephone number is (703)305-6900. The examiner can normally be reached on 9:00 AM to 5:30 PM.

11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703)305-4705. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3432 for regular communications and (703)305-3432 for After Final communications.

12. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.



Lilybett Martir
Examiner
Art Unit 2855

ECW

November 25, 2002